

IN THE CLAIMS:

1. (Currently amended) A An in vitro method of delivering a nucleic acid of interest to a primary human chondrocyte, comprising:
providing a recombinant ~~chimeric~~ adenovirus having a tropism for primary human chondrocytes, said recombinant ~~chimeric~~ adenovirus comprising:
a nucleic acid of interest operatively linked to a promoter, wherein said nucleic acid of interest encodes at least one amino acid sequence that inhibits cartilage disease progression, at least one amino acid sequence that counteracts the loss of cartilage, or a combination thereof;
a deletion in a gene encoding a fiber protein; and
a nucleic acid replacing the deletion in the gene of the fiber protein, said nucleic acid encoding at least a part of a fiber protein of a B-type adenovirus[[:]], and wherein said at least a part of the fiber protein of the B-type adenovirus has a tropism for primary human chondrocytes; and
infecting a primary human chondrocyte in vitro with said recombinant ~~chimeric~~ adenovirus, such that said nucleic acid of interest is delivered to said primary human chondrocyte.

2-4. Canceled.

5. (Previously presented) The method of claim 1, wherein said B-type adenovirus is adenovirus type 35.

6. (Currently amended) The method of claim 1, wherein said recombinant ~~chimeric~~ adenovirus comprises an adenovirus 5 nucleic acid sequence.

7. (Currently amended) The method of claim 5, wherein said recombinant ~~chimeric~~ adenovirus comprises an adenovirus 5 genome.

8. (Currently amended) The method of claim 1, wherein said recombinant ~~chimeric~~ adenovirus comprises at least one deletion in the E3 region where the nucleic acid of interest is inserted or can be inserted.

9-23. Canceled

24. (Currently amended) ~~Chondrocytes~~ In vitro chondrocytes provided with an additional nucleic acid encoding:

at least one amino acid sequence that inhibits cartilage disease progression;

at least one amino acid sequence that counteracts the loss of cartilage; or

a combination thereof;

said additional nucleic acid provided by a gene delivery vehicle comprising a recombinant

~~chimeric~~ adenovirus having a tropism for chondrocytes;

said recombinant ~~chimeric~~ adenovirus comprising:

a deletion in a gene encoding a fiber protein; and

a nucleic acid replacing the deletion in the gene encoding the fiber protein, said nucleic acid encoding at least a part of a fiber protein of a B-type adenovirus;

wherein said at least a part of the fiber protein of the B-type adenovirus has a tropism for primary human chondrocytes.

25. (Currently amended) The in vitro chondrocytes of claim 24, wherein said additional nucleic acid encodes at least one member of the family of bone morphogenesis proteins.

26. Canceled.

27. (Currently amended) A An in vitro method of ~~inhibiting cartilage disease progression~~ transducing a primary human chondrocyte, the method comprising:
preparing a recombinant ~~chimeric~~ adenovirus having a tropism for primary human chondrocytes, said recombinant ~~chimeric~~ adenovirus including:
a nucleic acid encoding a protein useful in inhibiting cartilage disease progression operatively linked to a promoter;
a deletion in a gene encoding a fiber protein; and
a nucleic acid replacing the deletion in the gene encoding the fiber protein, said nucleic acid encoding at least a part of a fiber protein of a B-type adenovirus[[:]], and
wherein said at least a part of the fiber protein of the B-type adenovirus has a tropism for primary human chondrocytes; and
infecting a primary human chondrocyte in vitro with said recombinant ~~chimeric~~ adenovirus, such that said nucleic acid of interest encoding the protein useful in inhibiting cartilage disease progression is expressed in said primary human chondrocyte, ~~inhibiting cartilage disease progression~~.

28. (Currently amended) A An in vitro method of ~~repairing cartilage~~ transducing a primary human chondrocyte, the method comprising:
preparing a recombinant ~~chimeric~~ adenovirus having a tropism for primary human chondrocytes, said recombinant ~~chimeric~~ adenovirus including:
a nucleic acid encoding a protein useful in repairing cartilage operatively linked to a promoter;
a deletion in a gene encoding a fiber protein; and
a nucleic acid replacing the deletion in the gene encoding the fiber protein, said nucleic acid encoding at least a part of a fiber protein of a B-type adenovirus[[:]], and
wherein said at least a part of the fiber protein of the B-type adenovirus has a tropism for primary human chondrocytes; and
infecting a primary human chondrocyte in vitro with said recombinant adenovirus, such that said nucleic acid encoding the protein useful in repairing cartilage is expressed in said primary human chondrocyte, ~~effecting the cartilage repair.~~

29. (New) An in vitro method of delivering a nucleic acid of interest to a primary human chondrocyte, comprising:
providing a recombinant adenovirus having a tropism for primary human chondrocytes, said recombinant adenovirus comprising:
a nucleic acid of interest operatively linked to a promoter, wherein said nucleic acid of interest encodes at least one member of the family of bone morphogenesis proteins;
a deletion in a gene encoding a fiber protein; and
a nucleic acid replacing the deletion in the gene of the fiber protein, said nucleic acid encoding at least a part of the fiber protein of a B-type adenovirus, wherein said at least a part of the fiber protein of the B-type adenovirus has a tropism for primary human chondrocytes; and
infecting a primary human chondrocyte in vitro with said recombinant adenovirus, such that said nucleic acid of interest is delivered to said primary human chondrocyte.